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10/816,734	04/02/2004	Devabhaktuni Srikrishna	TROPOS-1009-1	1391
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EXAMINER				
AHMED, SALMAN				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary**Application No.**

10/816,734

Applicant(s)

SRIKRISHNA ET AL.

Examiner

SALMAN AHMED

Art Unit

2419

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/17/2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4, 5, 9, 11-18, 21-26 and 28-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1, 2, 4, 5, 9, 11-16 and 39 is/are allowed.
- 6) ☒ Claim(s) 17, 18, 21-26 and 28-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claims 1, 2, 4, 5, 9, 11-18, 21-26 and 28 - 39 are pending.

Claims 17, 18, 21-26 and 28-38 are rejected.

Claims 1, 2, 4, 5, 9, 11-16 and 39 are allowed.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
3. Claims 17, 18, 21-26, 28-35, 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toh (US PAT PUB 5987011) in view of Serfaty (GB 2271693).

Regarding claim 17, Toh discloses routing method for Ad-hoc mobile networks (see col. 3 lines 2-12) comprising: each gateway originating and broadcasting beacons

over a plurality of channels (see col. 6 lines 7-21 and col. 12 lines 34-43), the beacons being broadcast over each of the plurality of channels at a predetermined rate (see col. 8 lines 16-20); each access node receiving over a plurality of channels, beacons from at least one upstream device (see col. 6 lines 8-10); if the at least one upstream device is an upstream access node, the indicators providing information of selected upstream paths between each of the upstream access nodes and upstream gateways (see col. 6 lines 48-60); and each access node determining an optimal set of routing paths between the access node and at least one upstream gateway, based upon a persistence of successfully received indicators, the optimal set of routing paths including a combination of paths over multiple channels (see col. 6 lines 48-60 and col. 7 lines 59-64).

Toh does not explicitly teach, simultaneously broadcasting beacons with a plurality of radios over a plurality of channels and simultaneously receiving over a plurality of channels, beacons over a plurality of radios.

Serfaty in the same field of endeavor teaches simultaneously broadcasting beacons with a plurality of radios over a plurality of channels and simultaneously receiving over a plurality of channels, beacons over a plurality of radios (figures 3 and 7, pages 4-5 lines 30-10).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate in Toh's system method the steps of simultaneously broadcasting beacons with a plurality of radios over a plurality of channels and simultaneously receiving over a plurality of channels, beacons over a plurality of radios

as suggested by Serfaty. The motivation is that (as suggested by Serfaty, page 5, lines 13-22), such method allows better interpolation and extrapolation between transmitters and receivers; thus promoting efficient communication. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

Regarding claim 21, Toh teaches the beacons are retransmitted by the upstream access nodes after the beacons have been modified to include selected upstream routing information (see col. 6 line 48 - 7 line 16).

Regarding claim 22, Toh teaches selected upstream paths between each upstream access node and upstream gateways can include a combination of paths, over multiple channels (see col. 6 lines 48-60).

Regarding claim 23, Toh teaches further comprising the access node transmitting a modified beacons over a plurality of channels, the modified beacons including the selected routing paths between the access node and the at least one upstream gateway (see col. 6 lines 7-21 and col. 7 lines 59-64).

Regarding claim 24, Toh teaches further comprising • sending a reverse beacon to the gateway (see col. 6 lines 8-10); and constructing a client tree in the gateway, wherein the gateway has at least one path including multiple channels to all clients (see col. 7 lines 52-64).

Regarding claim 25, Toh discloses routing method for Ad-hoc mobile networks (see col. 3 lines 2-12) comprising: a plurality of radios operable on a plurality of

transmission channels, the radios receiving over a plurality of channels, indicators from at least one upstream access node, the indicators providing information of selected upstream paths between each of the upstream access nodes and upstream gateways (see col. 6 lines 48-67); and means for determining an optimal set of routing paths between the access node and at least one upstream gateway (see col. 3 lines 39-56), based upon a persistence of successfully received - indicators, the optimal set of routing paths including a combination of paths over multiple channels (see col. 7 lines 59-64).

Toh does not explicitly teach, simultaneously simultaneously receiving over a plurality of channels, beacons over a plurality of radios.

Serfaty in the same field of endeavor teaches simultaneously receiving over a plurality of channels, beacons over a plurality of radios (figures 3 and 7, pages 4-5 lines 30-10).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate in Toh's system method the steps of simultaneously receiving over a plurality of channels, beacons over a plurality of radios as suggested by Serfaty. The motivation is that (as suggested by Serfaty, page 5, lines 13-22), such method allows better interpolation and extrapolation between transmitters and receivers; thus promoting efficient communication. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

Regarding claim 28, Toh teaches the indicators comprise beacons originating at the upstream gateways (see col. 6 lines 7-21 and col. 12 lines 34-43).

Regarding claim 29, Toh teaches the beacons are retransmitted by the upstream access nodes after the beacons have been modified to include selected upstream routing information (see col. 6 lines 7-21 and col. 7 lines 59-64).

Regarding claim 30, Toh teaches selected upstream paths between each upstream access node and upstream gateways can include a combination of paths, over multiple channels (see col. 6 lines 48-67).

Regarding claim 31, Toh teaches further comprising the access node transmitting a modified indicator over a plurality of channels, the modified indicator including the optimal set of routing paths between the access node and the at least one upstream gateway (see col. 6 lines 7-21 and col. 12 lines 34-43).

Regarding claim 32, Toh discloses routing method for Ad-hoc mobile networks (see col. 3 lines 2-12) comprising: at least one gateway, each gateway transmitting beacons through each of a plurality of transmission channels at a predetermined rate (see col. 6 lines 7-21 and col. 12 lines 34-43); a plurality of access nodes, each access node receiving beacons through at least one of the transmission channels (see col. 3 lines 39-56), each access node selecting routing paths based upon a persistence of successfully received beacons, the routing paths selected from the plurality of transmission channels, the selected set of routing paths including a combination of paths over multiple channels (see col. 7 lines 59-64); and a client, the client receiving

beacons through at least one of the transmission channels from at least one of the access nodes (see col. 6 lines 7-21).

Toh does not explicitly teach, simultaneously broadcasting beacons with a plurality of radios over a plurality of channels and simultaneously receiving over a plurality of channels, beacons over a plurality of radios.

Serfaty in the same field of endeavor teaches simultaneously broadcasting beacons with a plurality of radios over a plurality of channels and simultaneously receiving over a plurality of channels, beacons over a plurality of radios (figures 3 and 7, pages 4-5 lines 30-10).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate in Toh's system method the steps of simultaneously broadcasting beacons with a plurality of radios over a plurality of channels and simultaneously receiving over a plurality of channels, beacons over a plurality of radios as suggested by Serfaty. The motivation is that (as suggested by Serfaty, page 5, lines 13-22), such method allows better interpolation and extrapolation between transmitters and receivers; thus promoting efficient communication. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

Regarding claim 34, Toh teaches the access node determining an optimal set of routing paths comprises determining a path quality of the available paths, and selecting

the optimal paths based upon a selection criteria (see col. 6 lines 33-60 and col. 17 line 58- col, 18 line 20)

Regarding claim 35, Toh teaches the indicators comprise beacons originating at the gateways (see col. 6 lines 7-21 and col. 12 lines 34-43)

Regarding claim 36, Toh teaches the beacons are retransmitted by the upstream access nodes after the beacons have been modified to include selected upstream routing information (see col. 6 lines 7-21 and col. 12 lines 34-43).

Regarding claim 37, Toh teaches selected upstream paths between each upstream access node and upstream gateways can include a combination of paths, over multiple channels (see col. 6 lines 48-67).

Regarding claim 38, Toh teaches further comprising the access node transmitting a modified indicator over a plurality of channels, the modified indicator including the optimal set of routing paths between the access node and the at least one upstream gateway (see col. 6 lines 7-21 and col. 7 lines 59-64).

Regarding claims 18, 26, and 33, Toh teaches the plurality of channels comprises transmission channels according to at least two of 802.11(a), 802.11(b), 802.11(g), 802.11(n) transmission protocols (see col. 18 line 36).

Allowable Subject Matter

4. Claims 1, 2, 4, 5, 9, 11-16 and 39 are allowed.

Response to Arguments

1. Applicant's arguments see pages 10-18 of the Remarks section, filed 7/17/2008, with respect to the rejections of the claims have been fully considered and are moot in view of new ground of rejections presented in this office action.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **SALMAN AHMED** whose telephone number is (571)272-8307. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on (571) 272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Edan Orgad/

Supervisory Patent Examiner, Art Unit 2419